Amendments to the Claims

This listing of claims will replace all prior versions and listings of claims in the application:

Claims 1-34. (Canceled)

35. (Currently amended) A surgery system comprising:

at least one smart instrument;

a computer system;

a sensor system adapted to wirelessly sense the position of the at least one smart instrument and to transmit position information to the computer system;

wherein the sensor system includes a sensor array; and

wherein the sensor array includes at least three linear CCD cameras and at least one infrared transceiver.

36. (Original) A surgery system, as set forth in claim 35, wherein the at least one smart instrument includes a memory circuit for storing information related to the smart instrument, and wherein the at least one smart instrument is adapted to wirelessly transmit the information to the computer system.

37. (Original) A surgery system, as set forth in claim 36, where the information includes calibration information.

38. (Original) A surgery system, as set forth in claim 35, wherein the sensor system uses infrared signals.

39. (Original) A surgery system, as set forth in claim 35, wherein the sensor system uses radio frequency signals.

40. (Currently amended) A surgery system, as set forth in claim 35, wherein the sensor system [[used]] uses the IEEE 802.11 communication standard.

41- 43. (Cancelled)

44. (Original) A surgery system, as set forth in claim 35, wherein the computer system includes a monitor.

45. (Original) A surgery system, as set forth in claim 44, wherein the computer system is adapted to display a diagram of a patient on the monitor.

46. (Original) A surgery system, as set forth in claim 45, wherein the diagram is of one of an image, picture, outline and line drawing of at least a portion of the patient.

47. (Original) A surgery system, as set forth in claim 45, wherein the computer system is adapted to display a representation of the at least one smart instrument on the diagram.

48. (Original) A surgery system, as set forth in claim 47, wherein the representation of the at least one smart instrument is a line.

49. (Cancelled)

50. (Currently amended) A surgery system, as set forth in claim 35, wherein the computer ~~assembly~~ system includes:

a localizer coupled to the sensor system;

a computer workstation coupled to the localizer; and

a monitor coupled to the computer workstation.

51. (Original) A surgery system, as set forth in claim 50, wherein the at least one smart instrument includes a plurality of infrared light emitting diodes.

52. (Original) A surgery system, as set forth in claim 51, wherein the localizer is adapted to receive the position information from the sensor system, determine a relative position of each of the plurality of infrared light emitting diodes.

53. (Original) A surgery system, as set forth in claim 52, wherein the localizer is adapted to transmit the relation positions of the plurality of infrared light emitting diodes to the computer workstation.

54. (Original) A surgery system, as set forth in claim 52, wherein the localizer is adapted to determine a relative position and orientation of the at least one smart instrument as a function of the relative positions of the plurality of infrared light emitting diodes and transmit the relative position and orientation to the computer workstation.

55. (Currently amended) A surgery system, as set forth in claim 35, including:

a patient tracking system [[;]] including a universal tracker device ~~coupled to the patient tracking system~~;

wherein the sensor system is adapted to wirelessly sense the position of the universal tracker device and to transmit position information to the computer system.

56. (Original) A surgery system, as set forth in claim 55, wherein the universal tracker device includes a validation point.

57. (Original) A surgery system, as set forth in claim 56, wherein the validation point is used to validate the at least one smart instrument.

58. (Currently amended) A surgery system, comprising:

at least one smart instrument;

a patient tracking system[[;]] including a universal tracker device ~~coupled to the patient tracking system~~;

a localizer;

a computer workstation coupled to the localizer;

a monitor coupled to the computer workstation; and

a sensor system coupled to the localizer and being adapted to wirelessly sense the position of the at least one smart instrument and the universal tracker device and to transmit position information to the localizer;

wherein the sensor system includes a sensor array; and

wherein the sensor array includes at least three linear CCD cameras and at least one infrared transceiver.

59. (Currently amended) A surgery system, as set forth in claim [[59]] 58, wherein the at least one smart instrument includes first plurality of infrared light emitting diodes and the universal tracker device includes a second plurality of infrared light emitting diodes, wherein the localizer is adapted to receive the position information from the sensor system and to determine a relative position of each of the first and second plurality of infrared light emitting diodes.

60. (Currently amended) A surgery system, as set forth in claim 59, wherein the localizer is adapted to transmit the ~~relation~~ relative positions of the first and second plurality of infrared light emitting diodes to the computer workstation.

61. (Original) A surgery system, as set forth in claim 59, wherein the localizer is adapted to determine a relative position and orientation of the at least one smart instrument and the universal tracker device as a function of the relative positions of the first and second plurality of infrared light emitting diodes and transmit the relative position and orientation of the at least one smart instrument and the universal tracker device to the computer workstation.

62. (Currently amended) A surgery system, comprising:

at least one smart instrument;

a patient tracking system[[;]] including a universal tracking system having a validation point and being coupled to the patient tracking system;

a localizer;

a computer workstation coupled to the localizer;

a monitor coupled to the computer workstation; [[and]]

a sensor system adapted to wirelessly sense the position of the at least one smart instrument and to transmit position information to the localizer, wherein the validation point is used to validate the at least one smart instrument;

wherein the sensor system includes a sensor array; and

wherein the sensor array includes at least three linear CCD cameras and at least one infrared transceiver.

63. (Currently amended) A surgery system, comprising:

at least two smart instruments;

a computer system; and

a sensor system adapted to wirelessly sense the position of the at least two smart instruments and to transmit position information to the computer system;

wherein the sensor system includes a sensor array; and

wherein the sensor array includes at least three linear CCD cameras and at least one infrared transceiver.

64. (Original) A surgery system, as set forth in claim 63, wherein the computer system includes a monitor and wherein the computer system is adapted to display a diagram of a patient on the monitor.

65. (Original) A surgery system, as set forth in claim 64, wherein the computer system is adapted to display a representation of one of the at least two smart instruments on the diagram.

66. (Original) A surgery system, as set forth in claim 65, wherein the one of the at least two smart instruments is in use.

67. (Original) A surgery system, as set forth in claim 66, wherein the computer system is adapted to alternatively determine the position of the at least two smart instruments.

68. (Original) A surgery system, as set forth in claim 66, wherein the computer system is adapted to only determine the position of the one of the at least two smart instruments.

69. (Currently amended) A surgery system, comprising:

a sheet of flexible material having a plurality of markers on a first side;

a smart instrument adapted to be placed in contact with the plurality of markers;

a computer system; and

a sensor system adapted to wirelessly sense the position of the at least one smart instrument and to transmit position information to the computer system;

wherein the sensor system includes a sensor array; and

wherein the sensor array includes at least three linear CCD cameras and at least one infrared transceiver.

70. (Original) A surgery system, as set forth in claim 69, wherein the flexible material is a mesh.

71. (Original) A surgery system, as set forth in claim 69, wherein the sheet of flexible material includes a layer of adhesive on another side.

72. (Cancelled)

73. (Cancelled)

74. (Currently amended) A surgery system, comprising:

at least one smart instrument;

a validation tool, the validation tool including:

a base;

four columns coupled to the base;

at least one validation point; and,

a plurality of infrared light emitting diodes coupled to the base; and,

a computer system;

a sensor system adapted to wirelessly sense the position of the at least one smart instrument and the ~~calibration~~ validation tool and to transmit position information to the computer system, wherein the validation tool is adapted to validate the at least one smart instrument;

wherein the sensor system includes a sensor array; and

wherein the sensor array includes at least three linear CCD cameras and at least one infrared transceiver.

75. (Currently amended) A surgery system, comprising:

at least one smart instrument;

a calibrating tool, the ~~validation~~ calibrating tool including:

a base;

four columns coupled to the base;

a plurality of infrared light emitting diodes coupled to the base;

an upper plate and a lower plate slidably coupled [[tot]] to the four columns, the upper and lower plates each including an aperture for receiving the smart [[tool]] instrument during a calibration process; [[and]]

a computer system; and

a sensor system adapted to wirelessly sense the position of the at least one smart instrument and the ~~calibration station~~ calibrating tool and to transmit position information to the computer system, wherein the ~~calibration station~~ calibrating tool is adapted to calibrate the at least one smart instrument;

wherein the sensor system includes a sensor array; and

wherein the sensor array includes at least three linear CCD cameras and at least one infrared transceiver.

76. (Currently amended) A surgery system, comprising:

a smart instrument being composed of a flexible material; and having a plurality of light emitting diodes on a first side;

a computer system; and,

a sensor system adapted to wirelessly sense the position [[f]] of the plurality of light emitting diodes and to transmit position information to the computer system;

wherein the sensor system includes a sensor array; and

wherein the sensor array includes at least three linear CCD cameras and at least one infrared transceiver.

77. (Original) A surgery system, as set forth in claim 76, wherein the computer system is adapted to determine the contour of the smart instrument and perform a surface matching operation with a known contour.

78. (Original) A surgery system, as set forth in claim 76, wherein the smart instrument is part of a dynamic reference frame.

79. (Currently amended) A surgery system, comprising:

at least one smart instrument, having at least one control button

a computer system; and,

a sensor system adapted to wirelessly sense the position of the at least one smart instrument and to transmit position information to the computer system and to transmit status information of the at least one control button, wherein the computer system is adapted to perform an operation based on the activation of the control button and the position of the at least one smart instrument;

wherein the sensor system includes a sensor array; and

wherein the sensor array includes at least three linear CCD cameras and at least one infrared transceiver.